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The Hart's-Tongue Fern in Ontario

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INTRODUCTION

Descriptions of the Hart's-Tongue Fern (*Phyllitis Scolopendrium* (L.) Newman) and of its habits, habitats and disrupted range in North America have been the subjects of a large number of papers in the various botanical journals. This is evidence of the interest of both amateur and professional botanists in this somewhat unusual fern.

My first encounter with this fern in the field took place in the summer of 1950, when I found it growing in a rocky wooded area close to the edge of the Niagara escarpment near the small community of Kemble in Grey County, Ontario. This station is in one of the areas of greatest abundance of this fern in Ontario, as I realized later while preparing a map of its range.

In the spring of 1951, I discovered what was believed to be a new station for the Hart's-Tongue along the Niagara escarpment south of the Forks of the Credit River in Peel County. This is an extension of some twenty miles from the most southerly station reported at that time. However, during the fall of 1953, another discovery by my friend Professor F. P. Ide and several of his students added a second station still farther south along the escarpment at Mount Nemo in Halton County.

In an effort to determine whether the Hart's-Tongue

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had been reported before from Peel or Halton Counties, a detailed search of literature and an examination of available specimens have been undertaken. The results of my findings are presented in the form of a report on the distribution of *Phyllitis* in Ontario, together with a map and a historical account of the discovery of the various stations. It was also found, from field work and literature surveys, that the Holly Fern (*Polystichum Lonchitis* (L.) Roth) is a frequent associate of Hart's-Tongue and its distribution will, therefore, be outlined briefly for comparison.

DISTRIBUTION OF THE HART'S-TONGUE

The only Canadian stations for Hart's-Tongue known at the present time are in Ontario. The now almost legendary station near Woodstock, New Brunswick, has never been reestablished and some doubt exists as to whether the plants which gave rise to that record were indigenous. The only other Canadian records are two supposed, but unverified, reports, one from Vancouver Island, British Columbia, and the other from Manitoulin Island, Ontario (see Maxon, 14, p. 43).

The available records for the occurrence of Hart's-Tongue (*Phyllitis Scolopendrium* var. *americana* Fernald) in Ontario are shown on a map (Fig. 1) of the southern part of the province. The pattern of distribution obtained is a rather restricted one. One reason for this is the type of habitat in which the fern is usually found and the distribution of this type of habitat. The heavy line which has been added to the base map indicates approximately the position of the Niagara escarpment. There is a very good, though not complete, correlation between the distribution of Hart's-Tongue and the position of the Niagara escarpment in southern Ontario. The origin and extent of this physiographic feature have been set forth clearly by Chapman and Put-

nam (2, pp. 6-7) as follows:

“By far the greatest topographic break produced by differential erosion of harder and softer rock in Ontario is the Niagara escarpment. It rises in New York near Rochester, skirts Lake Ontario to Hamilton, then passes north to Collingwood. The Blue Mountain south of Georgian Bay, the Bruce Peninsula, and Manitoulin

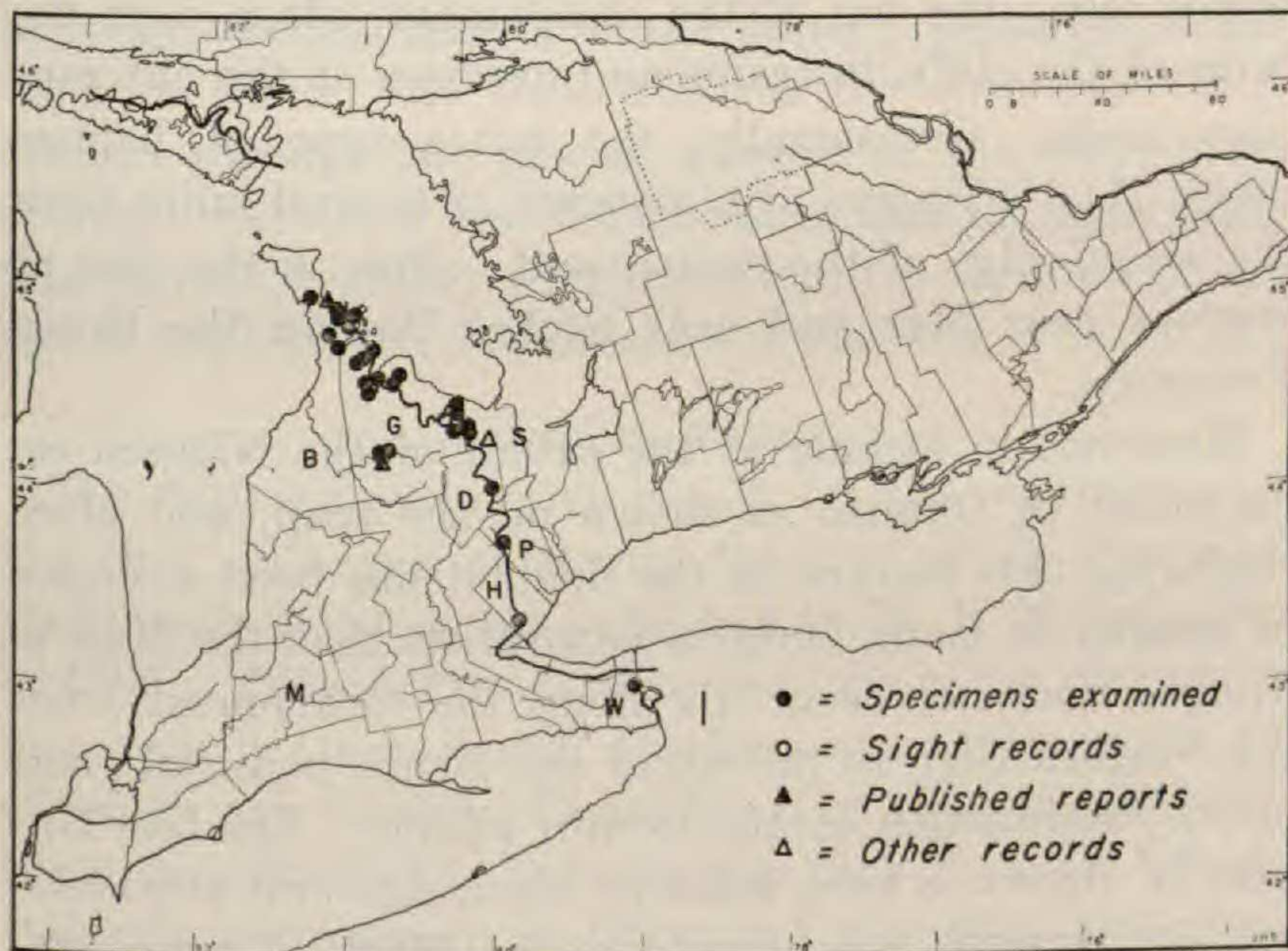


FIG. 1. Map of southern Ontario showing all known Ontario locations for *Phyllitis Scolopendrium*. Heavy line indicates position of the Niagara escarpment and its continuation in Manitoulin Is. Counties involved in discussion are lettered as follows: B = Bruce, D = Dufferin, G = Grey, H = Halton, M = Middlesex, P = Peel, S = Simcoe, W = Welland.

Island with its neighbours to the west constitute its extension in Ontario. Thence, it crosses the upper peninsula of Michigan and swings southward along the margin of that Lake. It forms the Door peninsula in Wisconsin but disappears west of Chicago. Thus, it partly encircles the Michigan basin into which the beds dip at the rate of 20 feet or more to the mile.”

The most common types of habitat in which Hart's-Tongue occurs in Ontario are those connected directly with the limestone or dolomite exposures of the Niagara escarpment. Here the fern is generally found in more or less widely separated areas along the wooded talus slope of this prominent topographic feature, particularly on and among boulders. It also occurs in rocky woods along the top of the escarpment, often near the brow of the cliffs, in seams and crevices of the outcropping rocks. Occasionally, the latter type of habitat yields Hart's-Tongue at a distance of several miles from the actual edge of the escarpment. This is the case at stations near Mar and near Stokes Bay in the Bruce Peninsula.

However, in looking at the extent of the Niagara escarpment in Ontario as shown on the map, and after exploring this feature in the field, it has been a source of wonder to many Ontario naturalists that the Hart's-Tongue does not occur all along the escarpment from the Niagara Glen to the tip of the Bruce peninsula and on its continuation in Manitoulin Island. The late Hubert H. Brown, a keen amateur naturalist and pteridologist at Toronto, who knew several Hart's-Tongue stations around Owen Sound, Woodford, and elsewhere in Grey County, once admitted having "searched in many places from the Forks of the Credit along the limestone escarpment, Milton, Waterdown, Hamilton, Winona, Beamsville, DeCew Falls, Queenston, etc., but failed to find it." W. Sherwood Fox, in his charming book about the Bruce Peninsula (6), has devoted a chapter entitled "The Herb Called Hart's-Tongue" to the recounting of his many years of searching for this fern and the final rewarding discovery of its haunts in the peninsula. If we exclude a former occurrence in the Niagara Glen which would not strictly be on the escarpment, then the

part of the escarpment from which Hart's-Tongue has been collected is the section between Mount Nemo in Halton County at the south and near Lion's Head in the Bruce Peninsula, the northern limit of this fern in Ontario.

The other notable type of habitat is that of the Durham or Rocky Saugeen stations, where the fern is found in rocky wooded valleys of the upper tributaries of the Saugeen River. At these stations the river has cut a channel through the glacial deposits to the bedrock of Silurian limestones and dolomites, so that the same basic type of rock, together with shade and the moisture of the soil or atmosphere, is available to the fern.

HISTORICAL ACCOUNT

The first comprehensive report on the occurrence of the Hart's-Tongue in North America which discussed the Ontario stations was published by W. R. Maxon (14) in 1900. Three main stations were given for this province, namely Owen Sound, Durham, and Collingwood, all of which are in Grey County.¹ The most detailed account specifically for Ontario was that of A. B. Klugh, formerly a professor at Queen's University, Kingston. In 1905 Klugh published (10) an account of the localities then known to him, together with a sketch map. The most significant additions reported by Klugh were stations to the northwest of Owen Sound: McLean's Mountain, near Kemble, and north of Wiarton in Bruce County to an area between Hope Bay and Lion's Head. Thus two counties were then represented—Grey and Bruce.

A third county was added to the score when, in 1907, Mr. J. F. Calvert, of London, Ontario, discovered a small

¹ Although Collingwood itself is located in Simcoe County, it is close to the western boundary, and the locality known as the Collingwood station, being about seven miles west of Collingwood, is actually in Grey County.

station for Hart's-Tongue at the Mono Rocks, located on the Niagara escarpment in the township of Mono in Dufferin County. The addition of Peel, the fourth county, to the list apparently belongs to Mr. E. A. Moxley, of Westbrook, who reports² finding Hart's-Tongue at the Forks of the Credit in 1918. His report is substantiated by my collection from the same general vicinity in 1951. Reports for Creemore (1918), Glen Huron (1921) and Singhampton (1921) give Mr. Moxley credit also for adding Simcoe County as the fifth county represented by the Hart's-Tongue range. The earliest specimen I have seen from Simcoe County, however, is a collection made near Singhampton in 1940 by Dr. F. A. Clarkson of Toronto. Finally, the most recent discovery of this species at Mount Nemo in Halton County has added a sixth county and extended the range considerably farther south in Ontario.

Omitted from this chronological series is Welland County, a record based on specimens collected in 1895 and again in 1939 in or near the Niagara River gorge. As the Hart's-Tongue may not have been indigenous in that locality, the details of these records will be outlined in the following discussion of the various stations.

DISCUSSION OF STATIONS

Owen Sound stations.—A good description of the original locality at Inglis Falls was given by Maxon (14) and need not be repeated here. The Falls in question (also called Ingall's Falls and Sydenham Falls) are formed by the Sydenham River plunging over the edge of the escarpment into a narrow gorge, after which it passes through the horse-shoe shaped lowland area in the northern part of which the town of Owen Sound is centered, and empties finally into the Sound. The orig-

² In personal correspondence with the author, dated July 13, 1953.

inal discoverer of the Owen Sound station was Professor C. William Hincks (9), in 1857, and not Robert Bell, in 1861, as reported by Lawson (12).

A second station located a few miles north of the falls in the same vicinity was known as the "Rifle Range." In addition to these, a whole series of local names given on herbarium sheets indicates that other areas probably existed in the vicinity of Owen Sound, although some of these cannot now be traced. Hart's-Tongue was collected, for example, at Cherry's Farm, Cruickshank's Farm, Whyte's Woods, Lee's sideroad, Leith's Woods, Jones' Falls, Haston's Mill, Royston Park, Harrison Park, and Sydenham Falls. The last two of these refer to the valley and the gorge below Ingall's Falls on the Sydenham River. Further data on the types of habitats occupied by Hart's-Tongue in the Owen Sound district were presented by McColl (15) in 1925.

In spite of the repeated depletions³ of these colonies by botanists, florists, and others, this fern has managed to persist in fair numbers at Owen Sound for a period now reaching almost one hundred years from the time of its discovery to the present. It was from the first-discovered station at Inglis Falls that M. L. Fernald collected material in 1934 which became the type of the American variety of *Phyllitis Scolopendrium* described by him in 1935 (4).

Durham station.—The second distinct locality is the Durham region,⁴ and the Little Saugeen River,⁵ where

³ Out of the total of 126 specimens from Ontario seen by the writer, some 57 had been taken from Owen Sound localities.

⁴ The inclusion of Durham County in the range of *Phyllitis*, as cited by M. L. Fernald in Gray's Manual (5, p. 42) and apparently copied by Gleason (7, p. 41) in Britton & Brown's Illustrated Flora, is obviously an error for the town of Durham, which is in Grey County. I have been informed by Dr. W. S. Fox that Fernald himself visited the Durham station during the Botanical Society's excursion to the Bruce Peninsula in June, 1934, at which time he left the party with the late Professor R. B. Thomson

it was discovered by H. M. Ami in 1883. At least two stands are known still to exist along the Rocky Saugeen River near Durham at Rocky Saugeen and below Hayward's Falls.

Niagara records.—Following in chronological order the next record would be the specimen collected in the Niagara Falls area (probably in the Glen of the Niagara River gorge) in 1895 by Wm. Scott. This record raises several questions, since the locality is about eighty-five miles from the nearest station to the northwest on the escarpment but is intermediate between the Canadian stations and the American ones near Syracuse in central New York state. No other records than that of Scott are known between 1895 and 1938, but from 1938 to 1945 the Hart's-Tongue was known to botanists and students working at the Niagara Parks Commission School for Gardeners, near the Glen. The main question is whether these reports stem from an indigenous stand in the Glen, since it is known that the Hart's-Tongue was transplanted to the gorge of the Niagara River (supposedly from central New York) by a Judge Clinton of Buffalo some time before 1882. It is not known exactly where Judge Clinton put this fern, but one of the more likely and accessible places would have been the Glen on the Canadian side of the river.

The second question regarding the Niagara Falls record is whether Hart's-Tongue still occurs there. It has not been reported from there since 1945 and several naturalists have made special searches in the vicinity

at the Rocky Saugeen crossing near Durham Town to see a small station of the Hart's-Tongue. This fern is unknown in Durham County, Ontario, which is considerably east of the known stations along the Niagara escarpment.

⁵ A typographical error for the name of this river in Macoun's Catalogue (13), where it appears as "Little Sau—" River, has been copied by Maxon (14) and others.

of the Niagara Glen since that time without success. Had there been an extensive natural stand in the Glen, then either some of the plants should still be there or there should have been more specimens reported and collected and (some at least) preserved since the collection made in 1895 by Wm. Scott. It does not seem impossible to consider that Judge Clinton's introduction was actually made in the Niagara Glen and that the fern established itself and persisted, forming the basis of Scott's and later discoveries there.

Collingwood station.—The first reports for this area date back at least to 1898, in which year Professor W. H. Jenkins of Owen Sound wrote to Maxon about the supposed occurrence of Hart's-Tongue at Collingwood, Ontario. Later confirmation established the locality as being about seven miles west⁶ of Collingwood in the township of Collingwood, Grey County. This locality is in a part of the Niagara escarpment described by Chapman and Putnam (2, p. 135) as follows:

“The highest and most picturesque part of the escarpment is the Blue Mountain section near Collingwood, which stands over 1,000 feet above the waters of Georgian Bay. Here the dolomitic cap rock is exposed in cliffs 150 feet high, while huge blocks breaking away from the wall have left deep crevasses known as ‘The Caves’.”

The Caves (or “Scenic Caves”) referred to above have been a local tourist attraction for many years and have provided both early and recent reports or collections of Hart's-Tongue.

Woodford stations.—The earliest record at hand for this locality is a collection made by James White in

⁶ Maxon says (14, p. 38) “seven miles in a westerly direction . . . and about 50 miles east of Owen Sound.” The latter estimate is in error since 50 miles by road or in a straight line east of Owen Sound would place the area east of both the escarpment and Collingwood.

1898. Woodford is a small community in Grey County about ten or twelve miles east of Owen Sound on the road to Meaford and Collingwood. The escarpment crosses this road just at Woodford and Hart's-Tongue occurs for some distance along it in both a northeasterly and a southwesterly direction. In an early account by H. Ransier (16) describing a journey by stage and on foot from Owen Sound, the presence of Hart's Tongue and Holly Fern along this ridge is reported, although the name Woodville is used for the community through which the ridge passes. Several collections made about three or four miles northeast of Woodford have been referred to Meaford on Nottawasaga Bay, but the collection localities would be about six or seven miles northwest of Meaford.

Early Records for Bruce County.—The first mention of Hart's-Tongue in the Bruce seems to be that by A. B. Klugh (10) who refers to its discovery three miles above Colpoy's Bay (just north of Wiarton) by W. E. Saunders in June, 1905. In August of the same year, Klugh spent some time investigating the area around Owen Sound and the Bruce Peninsula and was able to report Hart's-Tongue from outcrops and ridges intermittently from Owen Sound northward in the Peninsula to Hope Bay and to within a few miles of Barrow Bay just south of Lion's Head. The discoveries by Saunders and Klugh fixed the first stations at any distance north of Owen Sound by adding the localities of Kemble, McLean's Mountain, Colboy's Bay, Cape Croker, and Hope Bay. The McLean's Mountain station was visited also in 1909 by Ransier (16).

I have no record of any stations farther north along the east (escarpment) side of the Bruce than those reached by Klugh, but the actual northern limit has been extended by a recent collection by Vincent Elliott and W. Sherwood Fox from near Stokes Bay. This

extends the known range at least ten miles to the northwest and almost to the western side of the Peninsula. It will be interesting to note whether botanists in the future will be successful in locating Hart's-Tongue still farther north than this and, if so, how close to Tobermory at the tip of the peninsula. The recent discovery of Hart's-Tongue in the northern peninsula of Michigan (8) emphasizes the possibility that other sections of the Niagara escarpment or its continuation through Manitoulin Island may offer suitable habitats for this fern and should be searched more thoroughly.

Mono Rocks station.—About eight plants of Hart's-Tongue were discovered by J. F. Calvert in 1907 (1) in the township of Mono, Dufferin County, at what is known locally as the Mono Rocks. They were growing on a shaded cool hillside, facing east, which is part of the talus slope of the Niagara escarpment. The area has been revisited by botanists more recently (see Taylor (17), pp. 81–82) and is now the site of a thriving colony of Hart's-Tongue. If the stations near the Forks of the Credit River and at Mount Nemo develop in a similar manner, it might be postulated that this fern is spreading at least southwards along the Niagara escarpment.

Peel County records.—Although I now know that at least one other botanist has seen Hart's-Tongue in the Credit Forks vicinity and he at a much earlier date (E. A. Moxley in 1918, as noted above), my own discovery in the same general area in 1951 started this investigation into the Hart's-Tongue range. The discovery occurred during a weekend's respite from the marking of examination papers in late April, 1951, when, in company with three University colleagues, I was enjoying a leisurely ramble along the base of the Niagara escarpment near the Credit Forks. Although it was the first trip into the field that season, the purpose was not to

collect plants, but rather to observe and enjoy the unfolding of spring wherever and whenever opportunities presented themselves. It was a real surprise when, in the process of checking off the species of plants on my sight card, I spotted at the base of the talus slope a small boulder bearing a single plant of Hart's-Tongue growing from a crevice on its side. In the next few minutes the combined efforts of all four of us yielded several other similar boulders with the fern growing on them. It was not an extensive stand, but gave every indication of being a natural one. A single and somewhat depauperate plant was taken for a specimen to record this discovery.

Simcoe County records.—In the fall of 1952, Dr. F. P. Ide of the Department of Zoology, University of Toronto, furnished specimens collected in the southwestern part of Simcoe County. In this region the escarpment enters from Grey County at the west and turns south to pass into Dufferin County. Since Hart's-Tongue occurs along the escarpment at the Caves (Grey County) and at Mono Rocks (Dufferin County), it was to be expected that it might also be found on the short portion in Simcoe County. It was on this section of the escarpment that Dr. Ide found both the Hart's-Tongue and the Holly Fern.

Several months after receiving these records a small specimen turned up among material being prepared for the herbarium which proved to be an earlier record for Simcoe County. The specimen in question was one collected by Dr. F. A. Clarkson just northeast of Singhampton in the fall of 1940. Singhampton is located at the head of a narrow gorge where the Mad River plunges over the escarpment.

Still later, correspondence with E. A. Moxley uncovered the fact that he had known of Hart's-Tongue in the vicinity of Creemore, Glen Huron, and Singhamp-

ton as early as 1921. These localities are all in Simcoe County on or near the Niagara escarpment.

Halton County records.—The southern limit of Hart's-Tongue in Ontario has been greatly extended by the recent collection from Mount Nemo in Halton County. On October 4th, 1953, Professor F. P. Ide and three biology students were searching for solution caves in that part of the escarpment when they made the discovery. They found the Hart's-Tongue growing at the crest of a deep rift in the limestone near the prominently exposed cliff known as Mount Nemo.

SUMMARY OF DATA

The distribution map (Fig. 1) has been based on the data obtained from 126 specimens examined, together with any published reports, sight records, or other information available. The following list gives only those records which have been plotted, the many duplicates from some stations being omitted:

BRUCE: East of Stokes Bay Village, Aug. 24, 1952, *W. S. Fox & V. Elliott* (TRT)⁷—the northernmost record; rocky wooded ridge northwest of Hope Bay, June 7, 1952, *J. H. Soper* 5468 (TRT); moist rocky woods southwest of Hope Bay, July 19, 1935, *P. V. Krotkov* 10027a (TRT); calcareous rocks of the talus slopes of the cliffs around the bay, Cape Croker, July 9, 1936, *Fr. Marie-Victorin et al.* 45908 (MT); Wiarton, July 23, 1907, *M. Wilkes* (TRT); Purple Valley, Aug. 25, 1932, *H. H. Brown* (TRT); Mar, [date not stated], *A. H. Richardson* (McM); two miles south of Lion's Head—Klugh (11). DUFFERIN: Crevices of talus blocks in shade of deciduous trees, Mono Rocks, Nov. 3, 1933, *T. M. C. Taylor* 8349 (TRT). GREY: Rocky woods near Clavering, Aug. 1, 1938, *H. H. Brown* (TRT); mossy boulder at base of escarpment in woods near Lindenwood, June 6, 1952, *Soper & Rothfels* 5456

⁷ Abbreviations for herbaria are as follows: CAN—National Museum of Canada, Ottawa, Ontario; McM—McMaster University, Hamilton, Ontario; MT—Herbier Marie-Victorin, Institut Botanique, Université de Montréal, Montreal, Quebec; NPC—Niagara Parks Commission, School for Apprentice Gardeners, Niagara Falls, Ontario; TRT—Department of Botany, University of Toronto, Toronto, Ontario.

(TRT); crevices in limestone rocks north of Kemble, June 3, 1948, *Soper & Dale* 3825 (TRT); in horizontal seams of dolomite in deciduous woods, Ingall's [Inglis] Falls, June 19, 1934, *M. L. Fernald* 3040 (CAN—ISOTYPE); limestone rocks in deep shade, Harrison Park, Owen Sound, Aug. 1920, *W. R. McColl* (TRT); on shaded limestone, Leith Woods, Owen Sound, Sept. 20, 1914, *W. R. McColl* (TRT); Woodford, Sept. 22, 1898, *J. White* (TRT); talus slope, St. Vincent Tp., near [northwest of] Meaford, Aug. 26, 1950, *Montgomery & Beamer* (TRT); rich woods with some limestone outcrop, north of McIntyre, Aug. 21, 1947, *H. H. Brown* (TRT); shady limestone talus near "Scenic Caves", Aug. 23, 1937, *H. H. Brown* (TRT); lot 8, conc. II, Collingwood Tp., Oct. 11, 1952, *F. P. Ide* (TRT); rocky gorge along river near Rocky Saugeen, June 10, 1952, *Soper & Rothfels* 5525 (TRT); rocky wooded slope of ravine, below Hayward's Falls, Rocky Saugeen River, June 10, 1952, *Soper & Rothfels* 5518 (TRT); on limestone, Kolapore, Aug. 9, 1953, *M. L. Heimbürger* 1170 (JHS: sight record); on Guelph dolomites, Little Sau-[geen] River, Durham—Macoun (13). HALTON: In crevasse of limestone pavement along top of escarpment, Mount Nemo, Oct. 4, 1953, *R. L. & J. C. Pearson, F. P. Ide and J. L. Price* (TRT). PEEL: On scattered boulders at foot of talus slope of Niagara escarpment near Inglewood (south of Credit Forks), Apr. 28, 1951, *J. H. Soper et al.* 5155 (TRT). SIMCOE: Devil's Glen, east of Singhampton, Oct. 10, 1940, *F. A. Clarkson* (TRT); near Duntroon, Oct. 26, 1952, *F. P. Ide* (TRT); near Creemore, 1918, *E. A. Moxley* (corr. JHS). WELLAND: Niagara Falls, Sept. 21, 1895, *Wm. Scott* (TRT); [Niagara] Glen, Aug. 30, 1939, *G. H. Hamilton* (NPC). EXCLUDED RECORD: A specimen labelled "shaded cliffs, London [without date] *R. T. Anderson*" in the Herbarium of the Department of Botany, University of Toronto, has not been accepted as correctly labelled. There are no exposures of limestone or dolomite in the vicinity of London nor have any of the local botanists or naturalists reported this fern from that region. It is known that R. T. Anderson was a student at this University and that he visited Georgian Bay on one or more occasions. The specimen may have been collected in the Georgian Bay region somewhere along the Niagara escarpment. Any record for London, Ontario, is almost certainly an error.

The following brief summary of the records by county may be of interest. The doubted record for Middlesex

is not included in the table.

COUNTY	NO. OF STATIONS	NO. OF SPECIMENS	DATES OF SPECIMENS	FIRST RECORD
Bruce	6-9	20	1907-1952	Klugh (1905)
Dufferin	1	6	1933-1952	Calvert (1907)
Grey	14-16	93	1857-1953	Hincks (1857)
Halton	1	1	1953	Pearson, Ide et al. (1953)
Peel	1-2	1	1951	Moxley (1918)
Simcoe	3	3	1940-1952	Moxley (1918)
Welland	1 (+1?)	2	1895-1939	Scott (1895)

Totals: 27-33 (+1?) stations
126 specimens

THE HOLLY FERN IN SOUTHERN ONTARIO

As mentioned earlier, the Holly Fern (*Polystichum Lonchitis* (L.) Roth) is a frequent associate of the Hart's-Tongue in Ontario, their ranges being essentially the same over most of Bruce and Grey counties. The Holly Fern, however, occurs throughout the Bruce, from Wiarton to Tobermory (see Fig. 2), whereas the Hart's-Tongue has not been found as yet north of Stokes Bay. Conversely, the Holly Fern does not extend along the Niagara escarpment south of Grey County with the exception of a single station in the Niagara Glen, Welland County. Holly Fern has also been collected around the southeast shore of Lake Superior at Batchawana Bay (Algoma District, Northern Ontario), and from several points in Michigan along or near the south shore of Lake Superior. These latter localities cannot be included on the map used here.

These two ferns have been mentioned by Fassett (3) as an example of the general phenomenon that "two species sometimes occupy the same habitat, but one is more limited than the other." Perhaps the type of

habitat necessary for the establishment and survival of plants or colonies of Hart's-Tongue is based on a greater number of factors than that required by the Holly Fern. In attempting to explain the differences in their ranges one would have to examine not only the ecological factors but also the historical ones, such as former ranges and routes of migration, in terms of the glacial history of the areas involved.

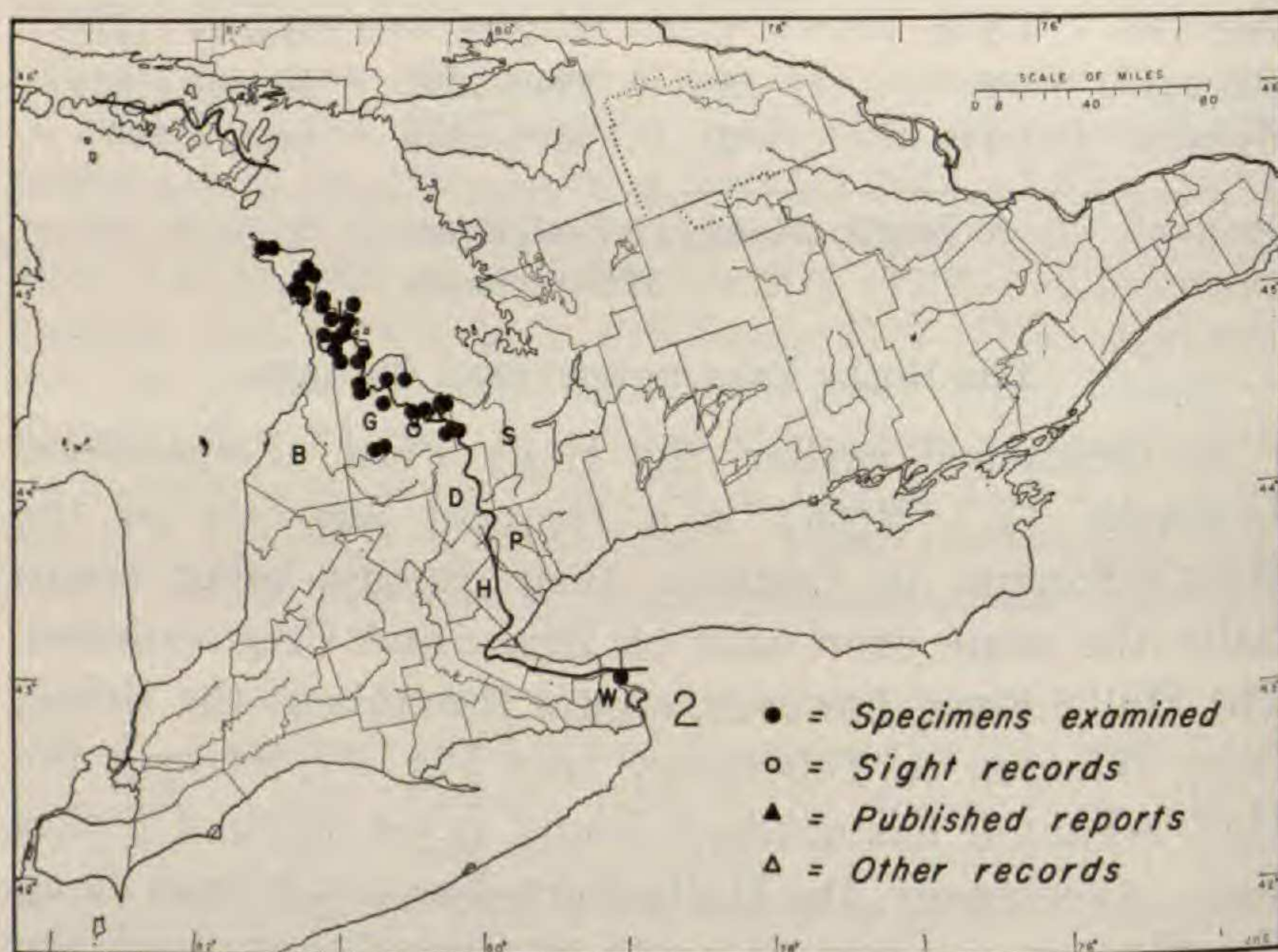


FIG. 2. Map of southern Ontario showing only southern records for *Polystichum Lonchitis*. (Algoma records are off the map at northwest.) Niagara escarpment and counties indicated as in Fig. 1.

Representative Specimens of Polystichum Lonchitis:—ALGOMA [not included on map]: Thin soil on lava, Batchawana Falls, Aug. 29, 1935, *T. M. C. Taylor et al.* 125 (TRT). BRUCE: Crevices in the rocks in Jack Pine Woods, south of Tobermory, July 17, 1936, *P. V. Krotkov* 10116 (TRT); crevices in maple woods, near Purple Valley, June 5, 1950, *Soper & Shields* 4577 (TRT). GREY: Owen Sound, 1869, *Mrs. Jessie Roy* (CAN); limestone talus, Rifle Range, Owen Sound, Aug. 27, 1932, *T. M. C. Taylor* (TRT); on rocky slope in shade of maples and elms, near Kemble, June 3,

1948, *Soper & Dale* 3821 (TRT); rocky slope below ridge of escarpment, near Lindenwood, June 6, 1952, *Soper & Rothfels* 5458 (TRT); rocky wooded ravine along Rocky Saugeen River below Hayward's Falls, June 10, 1952, *Soper & Rothfels* 5517 (TRT); talus slope below escarpment near Epping, Aug. 11, 1952, *J. H. Soper* 5774 (TRT). SIMCOE: Along rocky wooded ravine of Mad River between Singhampton and Glen Huron, June 29, 1950, *Soper & Shields* 4833 (TRT). WELLAND: Damp rocky soil, Niagara Gorge, Aug. 20, 1948, *Bert Miller* (McM). EXCLUDED RECORD: On his map of the North American Range of *Polystichum Lonchitis*, Fernald (4, map 3, p. 207) shows a record for the north shore of Lake Erie. I have not been able to trace the origin of this record but believe it to be erroneous, since no other reports have been seen for that district.

SUMMARY

An attempt has been made to map accurately the known range in Ontario of the Hart's-Tongue Fern (*Phyllitis Scolopendrium*) and to present a historical account of the discovery of the various stations. Two counties have been added which seem not to have been previously reported (Halton and Peel) and one deleted (Durham) which has been erroneously included in several publications. Discussions of the various stations and citations of specimens have been included. This study shows that a large number of separate stations for Hart's-Tongue are known along the Ontario portion of the Niagara escarpment and suggests that continued investigations in the field will probably disclose still more within the limits shown if not also additional ones to the north of those shown. In general, many parts of the escarpment have been little explored botanically. For comparison, the range of the Holly Fern (*Polystichum Lonchitis*) has been discussed and mapped for southern Ontario only, with citation of representative specimens.

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DEPARTMENT OF BOTANY, UNIVERSITY OF TORONTO.

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A Note on a Species of *Cyathea*

C. V. MORTON

Cyathea gemmifera Christ ex Jimenez, Bol. de Fomento [Costa Rica], Año III, No. 9: 664. 1913 (excl. figs. 1-6).

This species has apparently never been placed. The specimen designated as type in the original description is Herb. Jimenez, No. 913, collected by A. Tonduz at Cerros del Tremedal, San Ramón, Costa Rica, April, 1913. I have not seen the actual type, but there is in the National Herbarium an isotype received from the Museo Nacional de Costa Rica. This bears the number Herb. Nat. Cost. 17563. The data on the label read as follows: "*Collines de Tremedal, près de San Ramon. Arborescente 3-5 m. de haut, 7-10 cm. de diam. Nombreux bourgeons le long du stipe. 1,300-1,400 meters. 21 Avril, 1913.*" The specimen is sterile, as was the one seen by Christ. However, additional material of this collection received from Tonduz has two partially fertile pinnae, as well as one of the stipe buds mentioned on the label. These specimens are all *Cyathea mexicana* Schlecht. & Cham. The significance of the stipe buds, stressed by Christ as the distinctive characteristic of *Cyathea gemmifera*, must await field studies.

At a slightly later date Jimenez sent to Dr. Christ a